E949 PNN2 status update
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Abstract

Are SKIMMING variables being affected by code changes? I compared the raw file, skimmed file, and log file of *30315.1..49302.01*. I also reprocessed the skim file to determine events in the skim file. I reprocessed *30315.1..49302.01*, the kink stream skimming file and compared the output with the originally processed data and log files.

1 Numbers

File	skim 1-3	skim 4
log file	15117	15117
pass1 cuts	3542	390
skimmed	1555	390
reprocessed		
log file	1555	390
pass1 cuts	1555	390
skim cuts	1554	390

Table 1: Number of events

- Initial processing is processing from the staged data from tape.
- Reprocessing is processing on the skim output.

2 Weird - Event *30237*, Run 49302

This event has the following characteristics.

- Initially Passes TGCUT, but fails TGCUT during reprocessing on the skimmed file.
- *itgqualt2()* = {-1,-1,-1,5,5,0} during initial processing.
- *itgqualt2()* = {-1,-1,-1,5,5,-1} during reprocessing on skimmed file.

The ntuple variable *itgqualt2(1-6)* states the *swathccd* reconstruction code after each possible call to *swathccd* . *itgqualt2(i)*=-1 means that the routine is not called. *itgqualt2(i)* = 0,1 *swathccd* reconstructs the event. *itgqualt2(i)* = 5,6,7,8 *TGrecon* reconstructs the event. During current processing *itgqualt2(1-3)*=-1 because DCFIT1 is off, i.e. we do not refit the UTC track with target pion hits.

3 Where does the problem occur?

3.1 kcm files

I re-checked the output using the same kcm files and further reprocessed it on TRIUMF machines. kcm files are not causing the problem.

3.2 CFM

Compared BNL's and TRIUMF's cfm.record. There are differences! tg_zsl and tg_p50 are updated here at BNL. But TRIUMF employs the 'use' command in the kcm files, and the files used are identical. Also, a modification to bm_ct0 was done here are BNL, but the run numbers affected are <46000. So CFM is not the cause of the problem.

3.3 CAL_DB

Someone did not go by the standard format of NEVER changing individual files! At BNL, adc_prn.02001 has been added to. However, the runs that have been appended onto the file are ¿50228. So this is most likely not a problem. Need to check further.
I am going to do a further test. I will be tarring TRIUMFs CAL_DB, ftp-ing it over to BNL and compare every file in the directory. This should have been done before and should be an initial test before a major processing endeavor occurs.

3.4 CAL_DB

George Redlinger suggested that this could be caused by an initialization problem, i.e. stale information is carried over into event *30237*. The previous event in the raw data file (event$\geq$30228) is not the same as in the skimmed file (event=30219). With this idea I took great care in making sure the exact same procedures (same kcm files and executable) were done both at BNL and TRIUMF on the raw data file and the skimmed data file. The results of this were the following:
On the raw (staged from tape) data file, *swathccd* reconstructed the event. This occurred at BNL and TRIUMF machines.
On the skimmed data file, *swathccd* was not called on the last attempt, which resulted in *TGrecon* reconstructing the event and thus it fails the TGCUT.

3.4.1 When *swathccd* is called

```
from setup_pass1.F
...
         call swathccd(idctrk,1,trs,999.,999.)
         itgqualt2(4) = iqual_swccd
c         if(iqual_swccd.ne.4) then
c           call b4_95(xyb4,uvb4,tb4,ab4,nhit_b4,ibeam,reconst_b4)
c           if(reconst_b4.and.ibeam.le.10) then
c19mar03            call anal_b4_tdc(xyb4,uvb4,tb4,ab4,nhit_b4,ibeam,reconst_b4)
         call anal_b4_atc(xyb4,uvb4,tb4,ab4,nhit_b4,ibeam,reconst_b4)
         if (reconst_b4.and.ibeam.le.20) then
            call swathccd(idctrk,1,trs,xyb4(1,ibeam),xyb4(2,ibeam))
            itgqualt2(5) = iqual_swccd
            call get_tim_e949post(isuccess)
            IF (isuccess.eq.1) THEN
               call swathccd(idctrk,1,trs,xyb4(1,ibeam),xyb4(2,ibeam))
               itgqualt2(6) = iqual_swccd
            ENDIF
         endif
...
```

As seen in this code segment from setup_pass1.F, the last call to *swathccd* is determined by the routine *get_tim_e949post(isuccess).* Therefore, an effort is required to determine what values are being changed in this routine such that it removes *30237*from passing the skim.